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December 18, 2018

Ms. Lila C. Jones, Esq.  
Natural Resources Section  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044-7611

*lila.jones@usdoj.gov*

Sent Certified Mail #: 7018 0360 0000 3837 3654

RE: USEPA v. Jeffersonville, IN Sanitary Sewer Board

Dear Ms. Jones,

This letter comes in regard to the above-referenced matter, which was being handled by Nigel Cooney, and recently transferred to you. The DOJ file will reflect that the Jeffersonville, Indiana Sanitary Sewer Board was previously represented by Anson Keller (of OFW law), who unexpectedly passed away earlier this year. Gary Baise of OFW Law also continues to represent the Jeffersonville, Indiana Sanitary Sewer Board.

Since I have now been directed to become more involved in this case I am eager to hear from you about what you can expedite the resolution of this matter. Reaching such a resolution may make it unnecessary for my client to request an extension of time to comply with its permit obligations.

Enclosed with this letter is my client's response to follow-up questions that were posed by the USEPA (Region 5). Hopefully these responses will help resolve some of the technical concerns in my client's proposal.

As always, should you have questions or concerns regarding this matter, or the response, please feel free to contact me.

Sincerely,



Michael A. Gillenwater

Enclosure

MAG:mos

XC: Gary Baise  
Len Ashack  
Terry Branigan

EPA and IDEM hereby submit the following list of comments (non-italicized) and follow-up questions (italicized and in bold) regarding technical aspects of Jeffersonville's proposed LTCP revisions that remain after review of Jeffersonville's responses to the initial set of technical questions from EPA and IDEM dated April 20, 2018. References below in the form of "Question [x]" refer to questions stated in the April 20, 2018 set of questions and Jeffersonville's responses to such questions.

1. Question 1:

- a. ***With reference to response #1 provided by OFW Law in its May 11, 2018 letter on behalf of Jeffersonville, please clarify the total volume that will get treated in a typical year under the current LTCP and the total volume treated in each flow scenario (0 to 25MGD, 25 to 50 MGD, and 50 to 75 MGD) under the proposed LTCP.***

Response

*In the April 20, 2018 letter, EPA and IDEM requested the Downtown WWTP influent flow volume for each typical year wet weather event. In the May 11, 2018 letter, the City of Jeffersonville responded that the City does not have the ability to estimate the typical year flows to the Downtown WWTP because the CSO LTCP XPSWMM model only includes the combined sewer system.*

*The Downtown WWTP accepts flow directly from the Tenth Street combined sewage lift station and the 8 MGD Mill Creek, 6 MGD Spring Street, and the 1 MGD Krunchers separate sanitary lift stations. Note that these are designed capacities, the actual pumping capacities will be discussed in Question 3. The XPSWMM model includes the Tenth Street combined sewage lift station and sewer system. The XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations or sewer systems.*

*Therefore, the XPSWMM model does not have the ability to estimate total flow to the Downtown WWTP. Since the model does not have the ability to estimate total flow to the Downtown WWTP, the Downtown WWTP influent flow volume for each typical year wet weather event cannot be estimated using the XPSWMM model.*

*EPA and IDEM requested the Proposed Scenario Downtown WWTP influent flow volume for each typical year wet weather event under three Downtown WWTP flow conditions (from 0 to 25 MGD, from 25 to 50 MGD, and from 50 to 75 MGD). Since the XPSWMM model does not have the ability to estimate total flow to the Downtown WWTP, the Proposed Scenario Downtown WWTP influent flow volume for each typical year wet weather event under the three Downtown WWTP flow conditions cannot be estimated using the XPSWMM model.*

***Attachment 1*** *Contains a map of the sewer area served by the 10<sup>th</sup> Street Lift Station.*

- b. ***Also include the number of days for the proposed LTCP that it would be expected to operate in each flow scenario.***

Response

*Since the XPSWMM model does not have the ability to estimate total flow to the Downtown*

*WWTP, the number of days the Proposed Scenario Downtown WWTP will operate under the three Downtown WWTP flow conditions (from 0 to 25 MGD, from 25 to 50 MGD, and from 50 to 75 MGD) cannot be estimated using the XPSWMM model.*

- c. **Regarding separate flow, please explain how the model accounts for the flow from the separate system into the Downtown Wastewater Treatment Plant (DTWWTP).**

**Response**

*The Downtown WWTP accepts flow directly from the 8 MGD Mill Creek, 6 MGD Spring Street, and the 1 MGD Krunchers separate sanitary lift stations. The XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations or sewer systems.*

*See the response to the next two questions for separate sanitary flows that flow indirectly through the combined sewer system to the Downtown WWTP.*

- d. **How does the sewage from the separate area flow to the Downtown WWTP (directly? or through the combined system?)**

**Response**

*The Downtown WWTP accepts flow directly from the 8 MGD Mill Creek, 6 MGD Spring Street, and the 1 MGD Krunchers separate sanitary lift stations. The XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations or sewer systems.*

*The Downtown WWTP accepts flow indirectly through the combined sewer system from the Claysburg, Powerhouse, Camp Powers, Ewing Lane, Arctic Springs, and Rivershores Condo separate sanitary sewer systems. The Claysburg system flows by gravity into the Tenth Street combined sewage lift station and includes the Eastern Boulevard and Magnolia Avenue separate sanitary lift stations. The relatively small Powerhouse and Camp Powers systems are pumped into the combined sewer system. The Ewing Lane, Arctic Springs, and Rivershores Condo systems are pumped into the combined sewer system – See **Attachment 1**. Note: The Louise separate sanitary sewer system previously pumped into the combined sewer system but now pumps into the Mill Creek separate sanitary sewer system that discharges directly to the Downtown WWTP.*

- e. **How is that flow accounted for?**

**Response**

*The Downtown WWTP accepts flow directly from the 8 MGD Mill Creek, 6 MGD Spring Street, and the 1 MGD Krunchers separate sanitary lift stations. The XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations or sewer systems.*

*The Downtown WWTP accepts flow indirectly through the combined sewer system from the Claysburg, Powerhouse, Camp Powers, Ewing Lane, Arctic Springs, and Rivershores Condo separate sanitary sewer systems. The XPSWMM model includes flow from these separate sanitary sewer systems because they discharge into the Tenth Street combined sewage lift station or the combined sewer system. Flow from the Claysburg system was*

*directly metered as part of the CSO LTCP effort and is generated independently in the XPSWMM model. Flows from the relatively small Powerhouse and Camp Powers systems were metered from inside the combined sewer system and are generated in the XPSWMM model as part of the combined sewer system. Flows from the Ewing Lane, Arctic Springs, and Rivershores Condo systems were collectively metered and are collectively generated independently in the XPSWMM model. Note: Flow from the Louise separate sanitary system was metered from inside the combined sewer system and was generated independently in the XPSWMM model prior to the flow being redirected to the Mill Creek separate sanitary sewer system.*

- f. ***If the flow is not direct and is not estimated or accounted for, please explain how the model of the combined system was calibrated absent the separate system flows?***

**Response**

*All separate sanitary sewer systems flowing to the Downtown WWTP indirectly through the combined sewer system are included in the XPSWMM model.*

- g. ***If it does flow directly to the DWWTP, is it possible to simulate wet weather flows to the DWWTP in order to understand its capacity needs in wet weather?***

**Response**

*The Downtown WWTP accepts flow directly from the 8 MGD Mill Creek, 6 MGD Spring Street, and the 1 MGD Krunchers separate sanitary lift stations. The XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations or the sewer systems. To simulate total flow to the Downtown WWTP, the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations and sewer systems would need to be added to the model. The Mill Creek and Spring Street separate sanitary sewer systems would need to be metered and calibrated. The Krunchers separate sanitary flows would need to be metered and calibrated. Note: Calibration of the Krunchers separate sanitary flows is only possible if the facility maintains a predetermined manufacturing schedule.*

- h. ***More broadly, please also advise if more recent data on the system is available and if it is possible to provide data using more current flows to the DWWTP with use of more recent data.***

**Response**

*Data is continuously collected at the Downtown WWTP, lift stations, CSO outfalls and inside the combined sewer system. The XPSWMM model and Downtown WWTP estimations are not expected to change as more data is collected and considered.*

- i. ***Please share any more recent recalibration of the model if available.***

**Response**

*The original 2004 CSO LTCP XPSWMM model was calibrated using 3 less-than-ideal wet weather events encountered during the Phase 1 (April 2001 to May 2001) flow metering effort. The updated 2010 CSO LTCP XPSWMM model was recalibrated using 7 wet weather events encountered during the Phase 2 (May 2007 to May 2008) flow metering effort and 5 wet weather events encountered during the Phase 3 (November 2008 to May 2009) flow metering effort. The 2010 recalibration has been validated using 15 wet weather*



events encountered during the Phase 4 (May 2009 to January 2011) flow metering effort, 20 wet weather events encountered during the Phase 5 (February 2011 to December 2014) flow metering effort, and 9 wet weather events encountered during the Phase 6 (January 2015 to December 2015) flow metering effort. No additional calibration or calibration validation efforts are anticipated.

2. Question 9: Under the “proposed scenarios” in the table provided in response to question 9, the City expects total CBOD to drop from 95% reduction to 65% reduction between 50.0 and 75.0 MGD in its treated effluent.

a. **Please explain the rationale for this reduction and discuss whether the reduction may challenge the DWWTP’s ability to meet its NPDES permit requirements for CBOD.**

**Response**

A chemical enhanced high rate clarification process would typically remove CBOD between 65% and 90%. During wet-weather events, CBOD in the raw wastewater is predominantly particulate CBOD. Total CBOD removal from a chemically enhanced high rate clarifier depends on the fraction of soluble and particulate forms. Typically 65% and 95% CBOD removal is observed for soluble BOD and particulate CBOD, respectively. **Attachment 2** summarizes the real-time performance of a chemically enhanced high rate clarifier (Veolia's Actiflo) from two current installations namely Village Creek, Fort Worth, Texas and Sycamore Creek, Cincinnati, Ohio. Total BOD removal averages between 70% and 90% in these two installations. For the proposed wet-weather treatment at the Downtown WWTP, a 65% total CBOD removal was assumed to be conservative for the 75 MGD scenario. It should be noted the plant would see a very dilute influent during sustained peak flow greater than 50 MGD. The plant’s monthly report of operation (MRO) from 2017 and 2018 shows CBOD in raw sewage averaged around 94 mg/L during high flow conditions, see table below and **Attachment 3**. There are random spikes where CBOD is greater than 120 mg/L. This CBOD is predominantly in particulate form which would result in 90% removal. The real first flush condition occurs during summer months without major contribution from ground water infiltration. Example dates of the first flush from the MRO data indicates a CBOD of 92 mg/L on May 5<sup>th</sup> 2017 and 88 mg/L on July 31<sup>st</sup>, 2018.

Date	Rain (Inches)	DWWTP Avg Daily Flow (MGD)	CBOD (mg/L)
01/20/2017	0.39	14.10	86
01/21/2017	0.00	16.21	84
01/22/2017	0.00	17.05	98
04/29/2017	1.40	19.73	70
05/05/2017	1.17	20.48	92
09/01/2017	2.89	18.55	72
09/02/2017	0.52	13.63	75
02/16/2018	0.72	13.34	97
02/21/2018	0.73	10.25	108
02/22/2018	1.33	21.08	122
02/23/2018	1.87	25.31	78
02/24/2018	2.08	20.63	75
02/25/2018	0.11	19.77	75
07/31/2018	3.01	20.50	88

08/16/2018	2.79	19.77	154
09/08/2018	4.33	18.12	158
09/23/2018	1.05	12.47	114
09/24/2018	2.15	22.98	92
09/25/2018	1.03	17.17	70
09/26/2018	0.36	14.22	79
<b>AVERAGE</b>		<b>17.70</b>	<b>94</b>

- b. Please clarify the CBOD reduction estimate relative to the wet weather flow as referenced and confirm the effluent location as from the plant or CEHRT (per footnote #5) or other.**

**Response**

The combined effluent from the downtown plant (50 MGD) and chemically enhanced high rate clarifier (CEHRC - 25 MGD) will be sampled at the current Effluent Parshall Flume Structure. There is an existing composite sampler located downstream of the parshall flume and this location will continue to be use. The combined effluent quality for CBOD removal will be based on the DWWTP's performance at 50 MGD and CEHRC's performance at 25 MGD. When the CEHRC unit is receiving an average influent CBOD of 95 mg/L as shown in the above table, the high rate clarifier effluent CBOD will be 33 mg/L at 65% removal rate and 10 mg/L at 90% removal rate. At present, DWWTP is consistently discharging an effluent CBOD less than 3 mg/L, See **Attachment 3**. The proposed project using 50 MGD DWWTP (3 mg/L CBOD) and 25 MGD high rate clarifier effluent (33 mg/L CBOD) would produce a final effluent CBOD of 13 mg/L. On a monthly average basis, the high rate clarifier will be performing between 70% and 90% CBOD removal and, therefore, a monthly average CBOD in the combined effluent will be less than 10 mg/L meeting the current NPDES limits. The proposed chemically enhanced high rate clarification process will be able to converted in to a biological system by adding a 15-min HRT contact tank upstream. This contact tank would mix raw sewage and return activated sludge from the existing plant under aerated conditions to remove soluble BOD up to 90%. However, this addition of biological contact tank is not required at this time.

- c. Please explain how the % volumes captured, as stated in Jeffersonville's response to question 9, page 4, can be estimated, if it's not possible to forecast whether capacity is being exceeded at the DWWTP**

**Response**

The percent captures included in the response to Question 9 from April 20, 2018 reflect only the combined sewer system and separate sanitary sewer systems that flow to the Downtown WWTP indirectly through the combined sewer system. The percent captures at the Downtown WWTP or on a system-wide basis (including the North WWTP) would be much higher.

For the Current Scenario, the XPSWMM model assumed the Tenth Street lift station could only pump up to 35 MGD based on the assumption that if the 8 MGD Mill Creek, 6 MGD Spring Street, and 1 MGD Krunchers separate sanitary lift stations are all pumping at maximum design capacity, only 35 MGD of capacity is available for the combined sewer system at the 50 MGD Downtown WWTP. The assumption was necessary because the XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift or sewer systems. The assumption was considered conservative because the 1

*MGD Krunchers lift station typically only discharges peak flows of 0.1 MGD and because the Mill Creek and Spring Street lift stations may not always be pumping at peak design capacity leading up to and during each CSO discharge.*

*For the Proposed Scenario, the XPSWMM model assumed the Tenth Street lift station could only pump up to 50 MGD based on the assumption that if the 8 MGD Mill Creek, 6 MGD Spring Street, and 1 MGD Krunchers separate sanitary lift stations are all pumping at maximum design capacity, only 60 MGD of capacity is available for the combined sewer systems at the 75 MGD Downtown WWTP. The assumption was necessary because, as stated before, the XPSWMM model does not include the Mill Creek, Spring Street, and Krunchers separate sanitary lift stations or sewer systems. The assumption was considered very conservative because of the 10 MGD factor of safety (The Tenth Street Lift station was modeled with a capacity of 60 MGD but there was no reduction in the number of CSOs so CSO volumes corresponding to a Tenth Street lift station actual capacity of 50 MGD were reported). The assumption was also considered conservative because the 1 MGD Krunchers lift station typically discharges peak flows of 0.1 MGD and because the Mill Creek and Spring Street lift stations may not always be pumping at peak capacity leading up to and during each CSO discharge.*

*Note: Evaluation of recent flow data collected at Spring Street Lift Station (see table in the response to Question 3) suggests the Spring Street Lift Station pumping capacity may be closer to 7 MGD. The Tenth Street Lift Station capacity used for the Current Scenario may be less conservative than previously anticipated but the assumption is still valid. The Tenth Street lift station capacity used for the Proposed Scenario is still very conservative.*

3. Question 13: Further information/discussion is required on the ability to pump additional flow from the 10<sup>th</sup> street lift station to maximize pumpage through treatment and reduce CSO overflow volume. (It was noted in response to Question 13 that 61 MGD is possible with all four pumps running, 65 MGD with all 5 pumps running at 13 MGD each but Jeffersonville also states that 50 MGD is the rated pumping capacity for the 10<sup>th</sup> Street Lift station (October 24, 2017 lift station summary sheet).

#### Response

*In 2011, the Tenth Street Lift Station was designed and constructed for a total of 50 MGD rated pumping capacity with four pumps running and fifth pump as a standby pump. There are five (5) 12.5 MGD pumps. The lift station uses a 24-inch and a 36-inch force main to pump flow to the downtown plant. During the start-up process of the new lift station with the two force mains in use, the pumps were able to pump a total of 50 MGD with four pumps running and 61 MGD with all five pumps running. The lift station is currently programmed to pump a maximum flow between 34 MGD and 50 MGD to allow for additional flow from Mill Creek Lift Station and Spring Street Lift Station. Mill Creek Lift Station has three (3) 4.0 MGD pumps and Spring Street Lift Station has three (3) 3.0 MGD pumps.*

*SCADA log data between 2016 and 2018 was evaluated to determine the actual pumping capacity of these three lift stations. The SCADA log data shows Tenth Street Lift Station has pumped a total maximum flow up to 40 MGD. Mill Creek and Spring Street lift stations have pumped a maximum flow of 8.8 MGD and 8.6 MGD, respectively. These flow numbers were based on 1-min average values from SCADA log.*

*Table below summarizes peak flow numbers for the three lift stations in relation to the*

downtown plant influent and effluent peak flow conditions. The peak flow numbers shown are based on "1-minute average" and do not occur at the same time during a specific rain event. The numbers are shown this way to clarify the peak flow capacity of each lift station during a rain event. Both Mill Creek and Spring Lift Stations pump more compared to their design conditions which can restrict instantaneous flow from Tenth Street Lift Station. Averaging the "1-minute" peak flow numbers for Mill Creek and Spring Street in the table below, Mill Creek shows a maximum value of 6.8 MGD and Spring Street shows a maximum value of 7.0 MGD. The proposed wet-weather treatment project would allow Tenth Street Lift Station to pump a peak flow of 50 MGD with four pumps running and a peak flow of 61 MGD with all five pumps to DWWTP. When Tenth Street Lift Station is pumping at 50 MGD and combined peak flow from Mill Creek (8.0 MGD), Spring Street (7.0 MGD) and Krunchers (<1.0 MGD), the plant will be receiving a total instantaneous peak flow of 66 MGD. Therefore, the wet-weather treatment system is proposed at additional 25 MGD for a total plant capacity of 75 MGD. During the full pumping capacity of 61 MGD (with 5 pumps running) from the Tenth Street Lift Station, the plant flow would be 77 MGD using all high flow numbers. However, it would be unrealistic for this situation to occur. Furthermore, the XPSWMM model only used 50 MGD from Tenth Street Lift Station and 66 MGD plant capacity to determine the number of overflows in a typical year. 75 MGD total capacity at the WWTP would provide a buffering capacity to handle instantaneous peak flow numbers between 66 MGD and 75 MGD.

Date	Rain, Inches	10 <sup>th</sup> Street 24" Max Flow, MGD	10 <sup>th</sup> Street 36" Max Flow, MGD	Mill Creek Max Flow, MGD	Spring Street Max Flow, MGD	DWWTP Influent Max Flow, MGD	DWWTP Effluent Max Flow, MGD
02/24/2016	1.55	14.49	27.35	6.27	6.99	50.0	49.7
06/23/2016	2.14	16.01	25.76	5.63	6.55	50.0	32.5
06/17/2016	2.39	14.00	21.73	6.22	6.56	50.0	37.8
05/21/2017	1.58	16.11	26.14	6.14	6.98	50.0	25.3
09/01/2017	2.89	15.21	21.92	7.03	7.09	50.0	39.9
02/23/2018	1.87	15.84	25.82	7.78	6.54	50.0	47.8
02/24/2018	2.08	15.83	25.83	7.71	6.84	50.0	47.5
05/05/2018	1.53	15.21	25.05	5.11	8.65	50.0	23.6
06/01/2018	1.35	15.02	25.80	5.76	7.87	50.0	22.0
07/20/2018	1.58	14.90	21.55	5.55	7.17	47.5	23.2
07/31/2018	3.01	15.27	25.89	7.73	6.86	50.0	33.5
08/16/2018	2.79	15.86	24.92	8.80	7.00	50.0	32.2
09/08/2018	4.33	15.53	24.41	7.56	6.81	50.0	46.3
09/09/2018	--	16.22	25.40	7.83	6.41	50.0	44.7
09/24/2018	2.15	15.52	25.14	8.16	6.91	50.0	48.4
<i>Average Value</i>		15.4	24.8	6.8	7.0	49.8	44.7
Notes:							
(1) Peak flow shown for all the lift stations and downtown plant influent and effluent is based on 1-minute average recorded on SCADA log.							
(2) Plant influent is consistently shown to be a maximum of 50 MGD due to limitations of SCADA system chart scaled to a maximum of 50 MGD. In real conditions, max influent flow to the DWWTP is greater than 50 MGD. SCADA system scale is being modified to record flow greater than 50 MGD.							

- (3) All peak flow conditions at flow metering location for a specific rain event do not occur at the same time interval. Peak flow at each location is shown for a maximum flow reported in each force main to better understand the peak conditions during a specific rain event.

**Please provide explicit information on how the 10<sup>th</sup> Street PS is maximized during wet weather. Jeffersonville's response confirms that 8 MGD will come to the DWWTP from Mill Creek LS, 6 MGD will come from Spring Street LS and another 1 MGD from Crunchers for a total of 15 MGD. Please state whether the 10<sup>th</sup> Street PS will be operated at a minimum of 60 MGD during wet weather (15 + 60 = 75 MGD being the capacity of the biological DWWTP and HRT).**

**Response**

**Attachment 4** shows the SCADA logs for all Tenth Street, Mill Creek and Spring Street lift stations and the downtown WWTP influent and effluent flow during several rain events. Data was charted for February 2018 and September 2018 to show the maximization of current infrastructure during sustained rain events. The Tenth Street lift station is currently programmed to pump between 34 and 50 MGD based on additional flow coming from Spring Street, Mill Creek and Krunchers. Current SCADA log shows the Tenth Street lift station has pumped a maximum flow of 40 MGD during wet-weather. Further real time testing will be done prior to the design phase to determine the capacity of the Tenth Street lift station with four pumps running and with five pumps running. Testing will also include verifying maximum flow being handled by the two force mains (24" and 36") during peak flow conditions.

Date	Rain (Inches)	24" Force Main Peak Flow (MGD)	36" Force Main Peak Flow (MGD)	Combined Tenth Street Peak Flow (MGD)
06/22/2016	0.59	12.31	25.77	38.10
06/23/2016	2.14	13.73	25.76	39.50
04/29/2017	1.40	13.72	26.36	40.08
02/23/2018	1.87	13.03	25.82	38.85
02/24/2018	2.08	13.43	25.60	39.03

Note:

- 1) Flow numbers shown for 24" and 36" force mains occurs at the same time combined peak flow numbers shown.
- 2) The peak flow numbers shown in the table is based on "1-minute average" from SCADA log

4. Question 14: **Please describe what could be done to address the inaccuracy of CSO flow meters to the Ohio River that are impacted when the river elevation rises and interferes with the area-velocity meters?**

**Response**

The accuracy of the flow meters on the Ohio River CSO outfalls are not adversely impacted when the Ohio River elevation rises. The flow meters on the Ohio River CSO outfalls are area-velocity flow meters that can measure flow velocity in both directions and flow depths up to 30 feet. Backpressures should not have any adverse impact on the accuracy of area-velocity flow meters.

The accuracy of the flow meters on the Ohio River CSO outfalls are adversely impacted by



the installation conditions. Manufacturers suggest area-velocity flow meter are accurate to  $\pm 20\%$  if installed in ideal conditions. Ideal conditions include uniform laminar flow that typically only occurs where there are no pipe bends, no pipe junctions, no changes in pipe size, no changes in pipe slope, and no flow obstructions. The flow meters on the Ohio River CSO outfalls are installed directly downstream of the CSO regulating weir walls and directly upstream of separate stormwater discharges that share the CSO outfalls. The weir walls and stormwater discharges create significant turbulence which is not ideal conditions. In addition, the stormwater discharges create variable backpressures on the CSO discharges which would be challenging to model. These non-ideal conditions are the only locations where CSO can currently be measured. The accuracy of the flow meters could be increased if separate stormwater outfalls are constructed and manholes are installed on the CSO outfalls where ideal conditions exist.

**5. Please provide an implementation schedule for the new components of the plan that Jeffersonville has proposed.**

Response

See the attached Gantt Chart.

**6. Please explain the basis for the City's GI impact projection? (Has focused separation been considered where GI is an option?).**

Response

Total separation was identified and evaluated as a CSO abatement alternative in the LTCP. Green infrastructure is being proposed where geotechnical considerations allow.

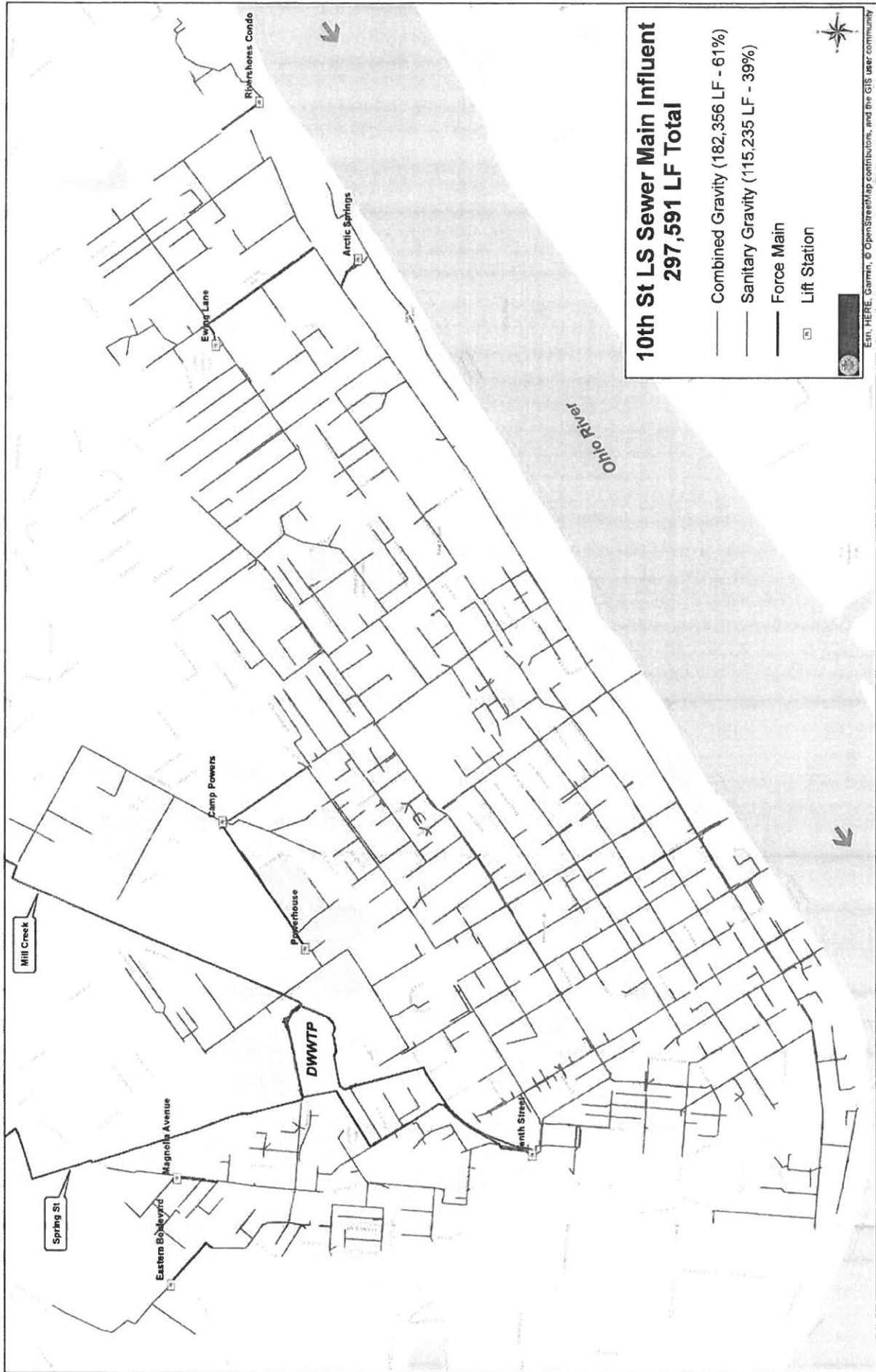
The green infrastructure included in the Seventh and Indiana Partial Sewer Separation project (consisting of bioswales on Seventh Street and Ohio Street) and in the Eight Street Combined Sewer Separation project (consisting of bioswales on Eighth Street and Walnut Street) were not included in the XPSWMM model because the green infrastructure discharges to the separate storm sewers.

The green infrastructure proposed in the Tenth Street Combined Sewer Separation Phase 2 project was not constructed.

The green infrastructure proposed in the 80% storage interceptor design (consisting of a rain garden on Spring Street and vegetative bump outs along Wall Street) was not included in the XPSWMM model because the impact of green infrastructure is challenging to quantify. The conservative assumption was made not to include the green infrastructure proposed in the 80% storage interceptor design in the XPSWMM model. Stormwater separation was not considered on Spring Street as a rain garden replacement or along Wall Street as a vegetative bump out replacement because separate storm sewers do not exist at these locations.

**ATTACHMENT 1**

**Sewer Area Map for Tenth Street Pump Station**



**ATTACHMENT 2**

**Veolia's Actiflo Performance Summary**

## VEOLIA'S ACTIFLO REAL TIME PERFORMANCE SUMMARY

### Sycamore Creek, Cincinnati, Ohio - Actiflo Performance Data

Date	Inf. BOD Composite	Eff. BOD Grab	BOD Rem. %	Eff Flow MGD
4/1/2008	56	10	82%	1.30
4/2/2008	66	11	83%	3.60
4/3/2008	63	16	75%	4.40
4/7/2008	71	10	86%	0.95
4/8/2008	111	9	92%	0.21
4/10/2008	102	9	91%	0.08
4/14/2008	147	2	99%	0.01
4/28/2008	134	5	96%	0.08
6/3/2008	54	13	76%	2.20
6/4/2008	17	12	29%	10.60
6/5/2008	27	10	63%	2.70
6/26/2008	103	13	87%	0.76
7/1/2008	114	13	89%	0.89
7/9/2008	105	16	85%	1.14
7/23/2008	68	12	82%	0.31
8/4/2008	162	2	99%	0.02
8/5/2008	89	15	83%	0.68
8/7/2008	138	29	79%	0.22
8/27/2008	176	9	95%	0.68
<b>AVERAGE</b>	<b>94.89</b>	<b>10.73</b>	<b>81%</b>	<b>1.95</b>

### Village Creek, Fort Worth, Texas - Actiflo Performance Data

Date	Flow, MGD	Inf. BOD	Eff. BOD	BOD Rem. %
5/24/2015	46	49.6	16.8	66%
5/25/2015	51	44.3	11.2	75%
5/26/2015	48	53.7	10.6	80%
5/27/2015	41	81.9	21.1	74%
5/28/2015	43	56.1	27.6	51%
5/29/2015	52	35.9	13.3	63%
5/30/2015	53	51.3	9.1	82%
5/31/2015	71	51.9	19.4	63%
<b>AVERAGE</b>	<b>51</b>	<b>53</b>	<b>16</b>	<b>69%</b>

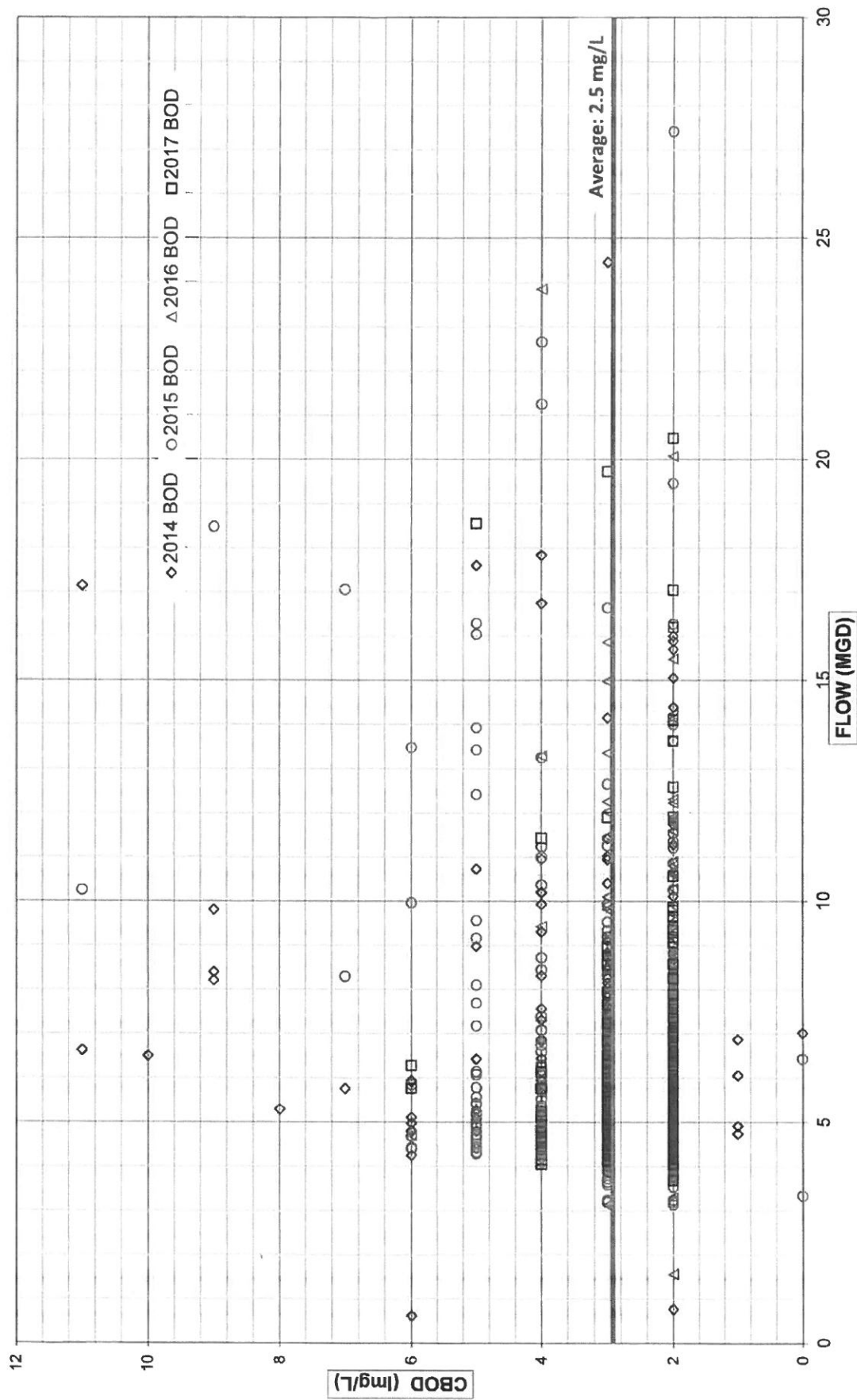


### **ATTACHMENT 3**

**Downtown WWTP MRO Summary – High Flow Conditions**

**Downtown WWTP MRO Chart – Effluent CBOD**

Downtown WWTP - ADF Vs BOD Effluent: January 2014 - December 2017





# **MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT**

Slate Form 10829 (R4 / 3-14)

Name of Facility <b>City of Jeffersonville</b>		Permit Number <b>IN0023302</b>	
Month <b>January</b>	Year <b>2017</b>	Plant Design Flow <b>9 mgd</b>	Telephone Number <b>812/285-6451</b>
E-mail address: <b>lashack@cityofjeff.net</b>			
Certified Operator: Name <b>Len Ashack</b>		Class <b>IV</b>	Certificate Number <b>WW016849</b>
		Expiration Date <b>6/30/2017</b>	

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total= 3.72	Bypass At Plant Site ("x" If Occurred)	Collection System Overflow ("x" If Occurred)	CHEMICALS USED			RAW SEWAGE												
			Precipitation - Inches	Chlorine - Lbs			Lbs/Day or Gal./Day	Lbs/Day or Gal./Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l						
29	Thu	Fill in December's effluent data on page 3 as necessary for correct weekly average calculations.							11.533													
30	Fri													8.551								
31	Sat													7.545								
1	Sun			0						4.741	7.4	178	7038	145	5733	2.5	44					
2	Mon			0.03						4.677	7.3	200	7801	222	8659	4.7	16					
3	Tue			0.54						8.584	7.2	165	11812	220	15750	3.5	14					
4	Wed			0						5.817	7.4	118	5725	225	10916	5.1	21					
5	Thu			0						5.523	7.4	190	8752	225	10364	4.6	20					
6	Fri			0						5.542	7.4	161	7441	142	6563		18					
7	Sat			0						5.430	7.5	325	14718	325	14718	4.5	19					
8	Sun			0						5.084	7.3	228	9667	160	6784	4.9	20					
9	Mon			0						4.987	7.6	230	9566	195	8110	5.1	20					
10	Tue			0.14						5.131	7.3	274	11725	315	13480	6.1	22					
11	Wed			0.18						6.132	7.6	170	8694	255	13041	4.6	22					
12	Thu			0.29						6.553	7.4	178	9728	248	13554	4.3	14					
13	Fri			0.18						7.031	7.6	124	7271	255	14953	4.7	16					
14	Sat			0.45						9.806	7.6	106	8669	160	13085	2.6	8					
15	Sun			0.12						7.889	7.5	110	7237	155	10198	1.9	10					
16	Mon			0.19						6.949	7.6	120	6955	238	13793	2.5	7					
17	Tue			0.44						11.907	7.4	147	14598	120	11917	1.4	8					
18	Wed			0						5.786	7.4	132	6370	190	9168	3.7	14					
19	Thu			0.77						9.074	7.5	108	8173	350	26487	3.0	5					
20	Fri			0.39						14.094	7.6	86	10109	202	23744	0.4	5					
21	Sat			0						16.207	7.5	84	11354	135	18247	1.7	8					
22	Sun			0						17.047	7.7	98	13933	128	18198	2.4	10					
23	Mon			0						7.491	7.5	155	9684	148	9246	4.1	15					
24	Tue			0						5.357	7.4	190	8489	220	9829	4.7	18					
25	Wed			0						5.538	7.4	148	6836	175	8083	4.2	18					
26	Thu			0						5.361	7.4	173	7735	165	7377	5.2	19					
27	Fri			0						5.164	7.4	183	7881	235	10121	5.8	18					
28	Sat			0						5.076	6.6	174	7366	178	7535	4.0	19					
29	Sun			0						5.117	7.5	242	10328	235	10029	6.6	20					
30	Mon			0						4.941	7.4	188	7747	235	9684	5.0	17					
31	Tue			0						5.050	7.4	228	9603	235	9897	4.6	22					
Average										7.196		168	9129	208	11912	3.9	16					
Maximum				0.77						17.047	7.7	325	14718	350	26487	6.6	44					
Minimum										4.677	6.6	84	5725	120	5733	0.4	5					
No. of Data				31	0	0	0	0	0	31	31	31	31	31	31	30	31					

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):	Date (month, day, year)
Signature of principal executive officer or authorized agent (or attested by NetDMR subscriber agreement)	Date (month, day, year)



# **MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT**

State Form 10829 (R4 / 3-14)

Name of Facility		Permit Number	
City of Jeffersonville		IN0023302	
Month	Year	Plant Design Flow	Telephone Number
April	2017	9 mgd	812/285-6451
E-mail address: lashack@cityofjeff.net			
Certified Operator: Name	Class	Certificate Number	Expiration Date
Len Ashack	IV	WW016849	6/30/2017

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total=	Bypass At Plant Site ("x" if Occurred)	Collection System Overflow ("x" if Occurred)	CHEMICALS USED			RAW SEWAGE							
				Precipitation - Inches			Chlorine - Lbs	Lbs/Day or Gal./Day	Lbs/Day or Gal./Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l
1	Sat			0						5.145	7.4	238	10212	270	11586	5.2	19
2	Sun			0						5.057	7.3	218	9194	218	9194	4.2	18
3	Mon			0.12		X				5.573	7.3	152	7065	140	6507	5.0	27
4	Tue			0		X				5.528	7.3	204	9405	195	8990	5.4	27
5	Wed			0						5.039	7.4	202	8489	145	6094	6.4	25
6	Thu			0.05						5.427	7.4	200	9052	212	9595	6.3	27
7	Fri			0						5.004	7.2	225	9390	145	6051	5.3	24
8	Sat			0						4.827	7.2	205	8253	235	9460	6.3	24
9	Sun			0						4.797	7.3	246	9842	210	8401	4.7	21
10	Mon			0						4.833	7.3	132	5321	175	7054	6.5	24
11	Tue			0.31		X				6.623	7.3	119	6573	110	6076	5.0	18
12	Wed			0.01						4.986	7.4	130	5406	230	9564	6.4	24
13	Thu			0						4.702	7.4	188	7372	235	9215	5.4	23
14	Fri			0						4.595	7.2	191	7320	168	6438	6.1	23
15	Sat			0						4.602	7.2	166	6371	150	5757	5.2	18
16	Sun			1.08						9.671	7.0	146	11776	376	30327	2.0	9
17	Mon			0.01						7.075	7.2	140	8261	92	5429	4.9	17
18	Tue			0						5.420	7.5	148	6690	92	4159	5.5	22
19	Wed			0						5.268	7.6	163	7161	150	6590	6.5	21
20	Thu			0.01						5.028	7.4	146	6122	130	5451	5.5	20
21	Fri			0.44						5.988	7.4	168	8390	155	7741	4.1	16
22	Sat			0.17		X				7.639	7.4	141	8983	230	14653	3.3	15
23	Sun			0		X				5.749	7.4	182	8726	90	4315	4.5	18
24	Mon			0						5.266	7.3	254	11155	205	9003	5.2	22
25	Tue			0						4.854	7.4	150	6072	160	6477	6.5	26
26	Wed			0						4.720	7.4	150	5905	178	7007	5.7	31
27	Thu			0.19		X				5.782	7.2	208	10030	145	6992	4.6	21
28	Fri			0.47		X				6.285	7.2	86	4508	145	7600	4.4	29
29	Sat			1.40		X				19.734	7.4	70	11521	120	19750	1.3	4
30	Sun			0						8.580	7.6	122	8730	70	5009	2.3	9
Average										6.127		170	8110	173	8683	5.0	21
Maximum				1.40						19.734	7.6	254	11776	376	30327	6.5	31
Minimum										4.595	7.0	70	4508	70	4159	1.3	4
No. of Data				30	0	8	0	0	0	30	30	30	30	30	30	30	0

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):

Date (month, day, year)

Signature of principal executive officer or authorized agent  
(or attested by NetDMR subscriber agreement)

Date (month, day, year)



# **MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT**

State Form 10829 (R4 / 3-14)

Name of Facility		Permit Number	
City of Jeffersonville		IN0023302	
Month	Year	Plant Design Flow	Telephone Number
May	2017	9 mgd	812/285-6451
E-mail address: lashack@cityofjeff.net			
Certified Operator: Name	Class	Certificate Number	Expiration Date
Len Ashack	IV	WW016849	6/30/2017

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total=	Bypass At Plant Site ("x" If Occurred)	Collection System Overflow ("x" If Occurred)	CHEMICALS USED			RAW SEWAGE							
				5.31			Chlorine - Lbs	Lbs/Day or Gal./Day	Lbs/Day or Gal./Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l
1	Mon			0.20		X				8.266	7.5	132	9100	190	13098	2.4	10
2	Tue			0						6.507	7.8	126	6838	118	6404	5.8	18
3	Wed			0						5.741	7.8	228	10917	91	4357	4.1	22
4	Thu			0.82		X				9.361	7.7	124	9681	242	18893	2.9	12
5	Fri			1.17		X				20.483	7.6	92	15716	135	23062	1.6	4
6	Sat			0.07		X				10.574	7.6	81	7143	198	17461	2.4	8
7	Sun			0						7.661	7.4	116	7412	72	4600	2.6	12
8	Mon			0						6.700	7.4	146	8158	86	4806	3.2	18
9	Tue			0						6.220	7.6	118	6121	225	11672	3.6	18
10	Wed			0.17						5.961	7.4	195	9694	228	11335	4.5	21
11	Thu			0.19		X				6.446	7.3	136	7311	165	8870	4.8	21
12	Fri			0.01						5.519	7.4	208	9574	165	7595	4.6	25
13	Sat			0						5.057	7.2	172	7254	220	9279	4.8	22
14	Sun			0						5.134	7.2	376	16099	338	14472	4.4	18
15	Mon			0						5.179	7.2	222	9589	200	8639	6.1	22
16	Tue			0						4.950	7.5	182	7514	115	4748	4.9	23
17	Wed			0						4.907	7.2	238	9740	240	9822	5.2	26
18	Thu			0						5.061	7.5	198	8357	200	8442	5.4	30
19	Fri			0.03						4.876	7.5	302	12281	295	11996	5.3	25
20	Sat			0.21		X				5.186	7.3	210	9083	195	8434	4.9	14
21	Sun			1.58		X				14.118	7.2	118	13894	215	25315	2.4	14
22	Mon			0						6.610	7.4	144	7938	142	7828	3.9	17
23	Tue			0						5.495	7.4	178	8157	225	10311	4.6	24
24	Wed			0.51		X				7.690	7.2	134	8594	170	10903	7.1	16
25	Thu			0.23		X				9.869	7.2	140	11523	160	13169	3.0	12
26	Fri			0						6.386	7.3	202	10758	148	7882	3.6	15
27	Sat			0.12		X				6.378	7.4	102	5426	80	4255	3.6	14
28	Sun			0						5.504	7.4	159	7299	195	8951	3.7	15
29	Mon			0						5.438	7.3	189	8572	190	8617	3.8	17
30	Tue			0						5.253	7.1	173	7579	218	9551	4.2	21
31	Wed			0						5.259	7.3	162	7105	220	9649	6.0	34
Average										7.025		171	9175	183	10465	4.2	18
Maximum				1.58						20.483	7.8	376	16099	338	25315	7.1	34
Minimum										4.876	7.1	81	5426	72	4255	1.6	4
No. of Data				31	0	10	0	0	0	31	31	31	31	31	31	31	0

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):	Date (month, day, year)
Len Ashack	
Signature of principal executive officer or authorized agent (or attested by NetDMR subscriber agreement)	Date (month, day, year)





# **MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT**

State Form 10829 (R4 / 3-14)

Name of Facility		Permit Number	
City of Jeffersonville		IN0023302	
Month	Year	Plant Design Flow	Telephone Number
September	2017	9 mgd	812/285-6451
E-mail address: lashack@cityofjeff.net			
Certified Operator: Name	Class	Certificate Number	Expiration Date
Len Ashack	IV	WW016849	6/30/2019

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total=	Bypass At Plant Site ("x" If Occurred)	Collection System Overflow ("x" If Occurred)	CHEMICALS USED			RAW SEWAGE							
				4.71			Chlorine - Lbs	Lbs/Day or Gal./Day	Lbs/Day or Gal./Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l
1	Fri			2.89		X				18.550	7.2	72	11139	45	6961.8	3.3	4
2	Sat			0.52		X				13.625	7.5	75	8522	50	5682	2.0	7
3	Sun			0						5.584	7.4	176	8196	120	5588	3.0	14
4	Mon			0						5.031	7.4	144	6042	310	13007	4.0	19
5	Tue			0.05						5.170	7.3	164	7071	178	7675	4.7	23
6	Wed			0						4.653	7.3	270	10478	185	7179	6.5	25
7	Thu			0						4.410	7.4	399	14675	282	10372	7.0	23
8	Fri			0						4.365	7.3	310	11285	175	6371	5.3	18
9	Sat			0						4.389	7.3	264	9664	215	7870	5.1	22
10	Sun			0						4.449	7.3	252	9350	275	10204	6.4	27
11	Mon			0		X				4.495	7.1	337	12634	245	9185	6.5	29
12	Tue			0.29		X				5.387	7.4	248	11142	108	4852	5.4	32
13	Wed			0.28		X				6.409	7.3	347	18548	305	16303	4.3	32
14	Thu			0		X				5.138	7.3	322	13798	340	14569	6.9	30
15	Fri			0						4.811	7.3	289	11596	240	9630	6.2	24
16	Sat			0						4.517	7.3	35	1319	270	10171	5.3	23
17	Sun			0						4.456	7.6	302	11223	258	9588	5.2	23
18	Mon			0						4.578	7.1	270	10309	360	13745	6.9	26
19	Tue			0.68		X				7.664	7.2	208	13295	528	33749	4.6	15
20	Wed			0						5.188	7.3	290	12548	265	11466	6.5	22
21	Thu			0						4.853	7.4	370	14975	290	11737	5.3	25
22	Fri			0						4.532	7.3	308	11641	265	10016	6.2	23
23	Sat			0						4.276	7.1	254	9058	240	8559	5.0	23
24	Sun			0						4.463	7.2	295	10980	220	8189	5.8	24
25	Mon			0						4.401	7.1	288	10571	305	11195	6.4	25
26	Tue			0		X				4.366	7.2	470	17114	250	9103	6.9	27
27	Wed			0		X				4.507	7.2	330	12404	250	9397	6.9	27
28	Thu			0						4.263	7.3	650	23110	425	15110	7.2	25
29	Fri			0						4.206	6.9	324	11365	235	8243	7.5	25
30	Sat			0						4.073	7.1	245	8322	220	7473	5.6	26
Average										5.560		277	11412	248	10440	5.6	23
Maximum				2.89						18.550	7.6	650	23110	528	33749	7.5	32
Minimum										4.073	6.9	35	1319	45	4852	2.0	4
No. of Data				30	0	9	0	0	0	30	30	30	30	30	30	30	0

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):	Date (month, day, year)
Len Ashack	10/18/2017
Signature of principal executive officer or authorized agent (or attested by NetDMR subscriber agreement)	Date (month, day, year)



Name of Facility		Permit Number	
City of Jeffersonville		IN0023302	
Month	Year	Plant Design Flow	Telephone Number
February	2018	9 mgd	812/285-6451
E-mail address: <a href="mailto:lashack@cityofjeff.net">lashack@cityofjeff.net</a>			
Certified Operator: Name	Class	Certificate Number	Expiration Date
Len Ashack	IV	WW016849	6/30/2018

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	Prepared by or under the direction of (Certified Operator):  <div style="text-align: center;">Len Ashack</div>	Date (month, day, year)  <div style="text-align: center;">3/14/2018</div>
	Signature of principal executive officer or authorized agent (or attested by NetDMR subscriber agreement)	Date (month, day, year)



# **MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT**

State Form 10829 (R4 / 3-14)

Name of Facility		Permit Number	
City of Jeffersonville		IN0023302	
Month	Year	Plant Design Flow	Telephone Number
July	2018	9 mgd	812/285-6451
E-mail address: lashack@cityofjeff.net			
Certified Operator: Name		Class	Certificate Number
Len Ashack		IV	WW016849
		Expiration Date	6/30/2019

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total=	Bypass At Plant Site ("x" If Occurred)	Collection System Overflow ("x" If Occurred)	CHEMICALS USED			RAW SEWAGE							
				6.42			Chlorine - Lbs	Lbs/Day or Gal/Day	Lbs/Day or Gal/Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l
1	Sun			0						4.252	7.3	265	9397	235	8333	5.2	19
2	Mon			0.70		X				8.106	7.7	138	9329	225	15211	3.1	15
3	Tue			0.22		X				6.624	7.4	260	14363	285	15745	5.0	14
4	Wed			0						4.796	7.8	128	5120	165	6600	4.2	17
5	Thu			0						4.501	7.2	278	10436	265	9948	6.1	20
6	Fri			0						4.322	7.3	271	9768	178	6416	4.6	25
7	Sat			0						4.085	7.4	272	9267	185	6303	4.4	20
8	Sun			0						4.244	7.4	202	7150	185	6548	4.0	20
9	Mon			0						4.500	7.4	230	8632	230	8632	6.7	19
10	Tue			0						4.307	7.3	205	7364	222	7974	5.4	29
11	Wed			0						4.207	7.5	270	9473	260	9122	5.5	27
12	Thu			0						4.352	7.4	346	12558	348	12631	8.7	30
13	Fri			0						4.213	7.3	232	8152	165	5798	5.0	27
14	Sat			0						4.213	7.3	216	7589	242	8503	4.7	21
15	Sun			0.03		X				4.438	7.3	310	11474	270	9993	6.5	22
16	Mon			0.42						5.893	7.2	256	12582	382	18774	5.9	18
17	Tue			0						4.429	7.2	220	8126	245	9050	6.1	25
18	Wed			0						4.061	7.3	322	10906	255	8637	5.4	22
19	Thu			0.01						3.983	7.3	318	10563	285	9467	9.1	32
20	Fri			1.58		X				9.045	7.5	162	12221	82	6186	4.2	12
21	Sat			0.04		X				6.110	7.4	138	7032	65	3312	3.6	15
22	Sun			0.28		X				6.673	7.3	211	11743	355	19757	3.7	12
23	Mon			0						5.002	7.6	228	9511	230	9595	7.1	19
24	Tue			0						4.618	7.3	244	9397	222	8550	6.0	21
25	Wed			0						4.331	7.4	300	10836	150	5418	6.6	22
26	Thu			0						4.159	7.3	296	10267	235	8151	6.2	28
27	Fri			0						4.093	7.1	470	16044	325	11094	12.0	27
28	Sat			0						4.005	7.5	278	9286	270	9018	5.1	24
29	Sun			0						4.015	7.4	288	9644	255	8539	5.0	20
30	Mon			0.13		X				4.221	7.4	132	4647	150	5280	2.9	21
31	Tue			3.01		X				20.466	7.4	88	15020	120	20482	2.0	6
Average										5.363		244	9932	229	9647	5.5	21
Maximum				3.01						20.466	7.8	470	16044	382	20482	12	32
Minimum										3.983	7.1	88	4647	65	3312	2	6
No. of Data				31	0	8	0	0	0	31	31	31	31	31	31	31	0

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):	Date (month, day, year)
Len Ashack	
Signature of principal executive officer or authorized agent (or attested by NetDMR subscriber agreement)	Date (month, day, year)





# MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT

State Form 10829 (R4 / 3-14)

Name of Facility			Permit Number	
City of Jeffersonville			IN0023302	
Month	Year	Plant Design Flow	Telephone Number	
August	2018	9 mgd	812/285-6451	
E-mail address: lashack@cityofjeff.net				
Certified Operator: Name		Class	Certificate Number	Expiration Date
Len Ashack		IV	WW016849	6/30/2019

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total=	Bypass At Plant Site ("x" If Occurred)	Collection System Overflow ("x" If Occurred)	CHEMICALS USED			RAW SEWAGE							
				5.26			Chlorine - Lbs	Lbs/Day or Gal./Day	Lbs/Day or Gal./Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l
1	Wed			0						6.457	7.6	105	5654	115	6193	3.6	16
2	Thu			0						5.364	7.4	282	12615	180	8052	2.2	16
3	Fri			0						4.917	7.6	240	9842	160	6561	5.2	22
4	Sat			0.15		X				5.429	7.4	148	6701	145	6565	4.2	17
5	Sun			0						4.598	7.5	299	11466	270	10354	4.0	18
6	Mon			0						4.564	7.4	225	8564	235	8945	5.4	24
7	Tue			0.02						4.661	7.5	238	9252	215	8358	6.2	24
8	Wed			0.16		X				5.643	7.4	232	10919	180	8471	4.1	22
9	Thu			0						4.463	7.4	212	7891	98	3648	5.0	20
10	Fri			0						4.314	7.4	220	7915	145	5217	5.7	22
11	Sat			0						4.415	7.4	238	8763	258	9500	4.4	20
12	Sun			0						4.428	7.5	145	5355	180	6647	3.6	20
13	Mon			0						4.440	7.4	229	8480	310	11479	6.8	21
14	Tue			0						4.368	7.4	295	10747	280	10200	5.3	27
15	Wed			0.68		X				6.376	7.4	255	13560	228	12124	5.4	26
16	Thu			2.79		X				19.775	7.4	154	25398	210	34634	6.3	25
17	Fri			0.12		X				8.546	7.4	130	9266	108	7698	3.0	12
18	Sat			0						6.608	7.5	134	7385	160	8818	2.7	12
19	Sun			0.06		X				6.020	7.7	145	7280	280	14058	4.2	14
20	Mon			1.04		X				10.338	7.4	105	9053	65	5604	2.2	10
21	Tue			0.06						7.726	7.8	99	6379	172	11083	2.4	16
22	Wed			0						6.515	7.6	122	6629	160	8694	3.6	15
23	Thu			0						5.759	7.8	234	11239	242	11623	4.8	18
24	Fri			0						5.347	7.4	146	6511	90	4013	4.4	22
25	Sat			0						5.083	7.4	157	6656	98	4154	3.9	18
26	Sun			0						5.103	7.5	295	12555	190	8086	4.4	17
27	Mon			0						4.797	7.3	335	13402	298	11922	4.5	18
28	Tue			0						4.764	7.8	195	7748	140	5562	4.9	24
29	Wed			0						4.818	7.3	305	12256	302	12135	6.4	26
30	Thu			0						4.650	7.4	208	8066	255	9889	6.0	29
31	Fri			0.18		X				5.633	7.4	216	10148	188	8832	5.0	22
Average										5.997		205	9603	192	9326	4.5	20
Maximum				2.79						19.775	7.8	335	25398	310	34634	6.8	29
Minimum										4.314	7.3	99	5355	65	3648	2.2	10
No. of Data				31	0	8	0	0	0	31	31	31	31	31	31	31	0

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):	Date (month, day, year)
Len Ashack	
Signature of principal executive officer or authorized agent (or attested by NetDMR subscriber agreement)	Date (month, day, year)



# **MONTHLY REPORT OF OPERATION ACTIVATED SLUDGE TYPE WASTEWATER TREATMENT PLANT**

State Form 10829 (R4 / 3-14)

Name of Facility		Permit Number	
City of Jeffersonville		IN0023302	
Month	Year	Plant Design Flow	Telephone Number
September	2018	9 mgd	812/285-6451
E-mail address: lashack@cityofjeff.net			
Certified Operator: Name		Class	Certificate Number
Len Ashack		IV	WW016849
		Expiration Date	
		6/30/2019	

Day Of Month	Day of Week	Man-Hours at Plant (Plants less than 1 MGD only)	Air Temperature (optional)	Total=	Bypass At Plant Site ("X" If Occurred)	Collection System Overflow ("X" If Occurred)	CHEMICALS USED			RAW SEWAGE							
				10.74			Chlorine - Lbs	Lbs/Day or Gal./Day	Lbs/Day or Gal./Day	Influent Flow Rate (if metered) MGD	pH	CBOD5 - mg/l	CBOD5 - lbs	Susp. Solids - mg/l	Susp. Solids - lbs	Phosphorus - mg/l	Ammonia - mg/l
1	Sat			0.01		X				4.956	7.4	225	9300	220	9093	4.2	18
2	Sun			0						4.518	7.6	80	3014	65	2449	4.1	19
3	Mon			0						4.589	7.6	156	5970	205	7846	3.7	19
4	Tue			0						4.670	7.4	186	7244	225	8763	5.2	20
5	Wed			0						4.468	7.5	182	6782	190	7080	4.5	25
6	Thu			0.78		X				7.079	7.4	192	11335	240	14169	3.9	16
7	Fri			0.01						4.967	7.4	166	6877	110	4557	5.2	24
8	Sat			4.33		X				18.122	7.4	158	23880	392	59246	3.2	2.4
9	Sun			0.04		X				15.537	7.5	68	8811	140	18141	1.4	4.3
10	Mon			0						8.612	7.7	190	13647	192	13790	3.6	11
11	Tue			0						6.709	7.7	154	8617	220	12310	3.6	19
12	Wed			0						6.121	7.8	308	15723	190	9699	4.4	20
13	Thu			0						5.829	7.6	206	10014	205	9966	5.2	24
14	Fri			0						5.360	7.7	239	10684	145	6482	5.7	20
15	Sat			0						5.165	7.5	300	12923	340	14646	5.0	18
16	Sun			0						5.176	7.4	289	12476	238	10274	3.8	19
17	Mon			0						5.202	7.5	175	7592	175	7592	4.6	19
18	Tue			0						5.009	7.4	230	9608	172	7185	7.0	27
19	Wed			0						4.909	7.5	258	10563	235	9621	6.3	30
20	Thu			0						4.845	7.4	234	9455	205	8283	5.6	26
21	Fri			0.43		X				6.378	7.4	305	16224	105	5585	3.9	20
22	Sat			0.46		X				6.587	7.5	182	9998	192	10548	4.2	12
23	Sun			1.05		X				12.471	7.5	114	11857	270	28082	2.5	6.0
24	Mon			2.15		X				22.978	7.6	92	17631	242	46376	2.2	2.6
25	Tue			1.03		X				17.169	7.5	70	10023	160	22910	1.4	3.0
26	Wed			0.36		X				14.217	7.6	79	9367	122	14466	2.4	6.5
27	Thu			0.04		X				8.820	7.6	166	12211	220	16183	4.2	13
28	Fri			0.01						7.500	7.6	174	10884	158	9883	3.8	24
29	Sat			0						6.539	7.5	92	5017	135	7362	2.8	14
30	Sun			0						6.304	7.4	168	8833	180	9464	3.2	13
Average										8.027		181	10552	196	13735	4.0	16
Maximum				4.33						22.978	7.8	308	23880	392	59246	7.0	30
Minimum										4.468	7.4	68	3014	65	2449	1.4	2.4
No. of Data				30	0	11	0	0	0	30	30	30	30	30	30	30	0

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Prepared by or under the direction of (Certified Operator):

**Len Ashack**

Signature of principal executive officer or authorized agent  
(or attested by NetDMR subscriber agreement)

Date (month, day, year)

Date (month, day, year)

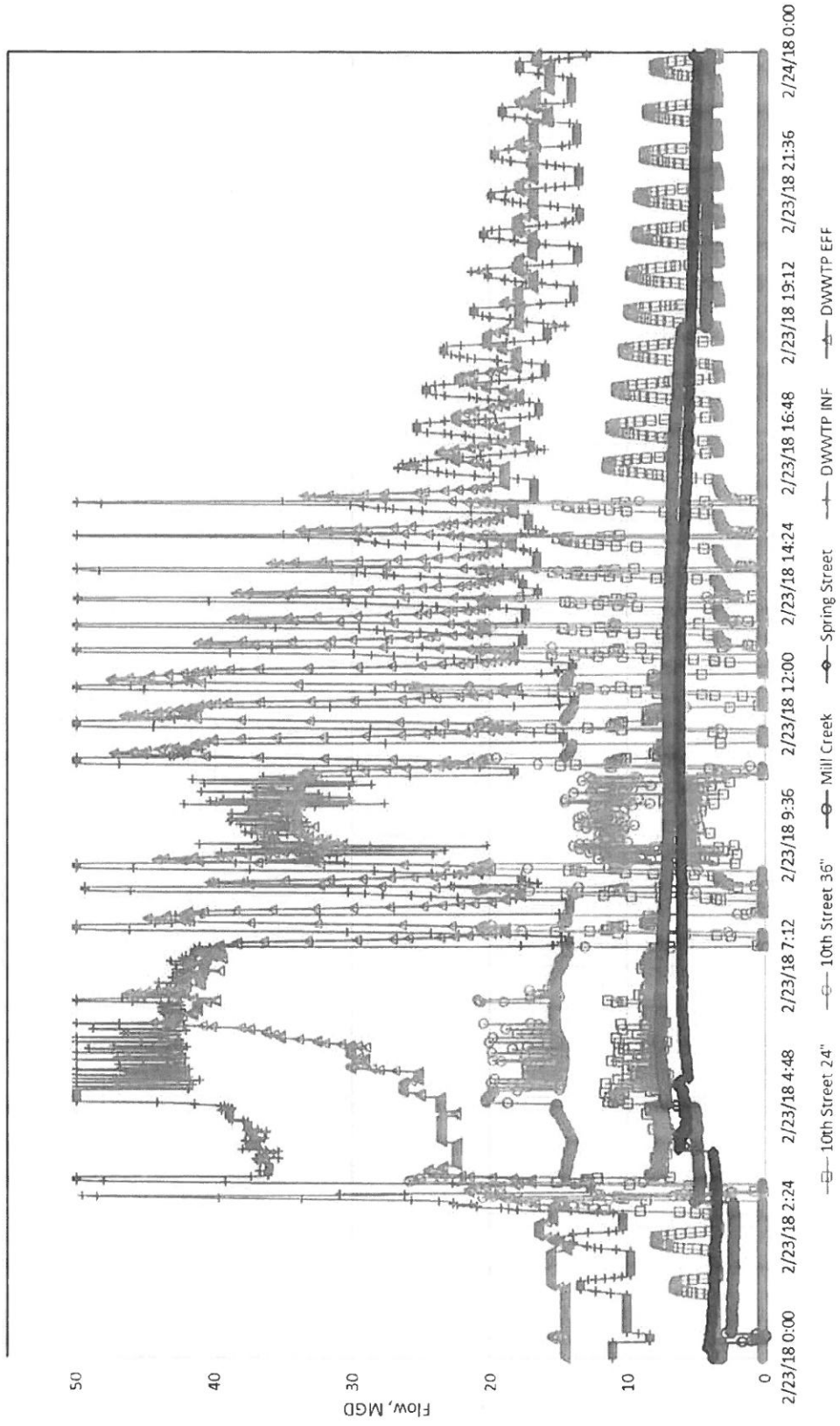


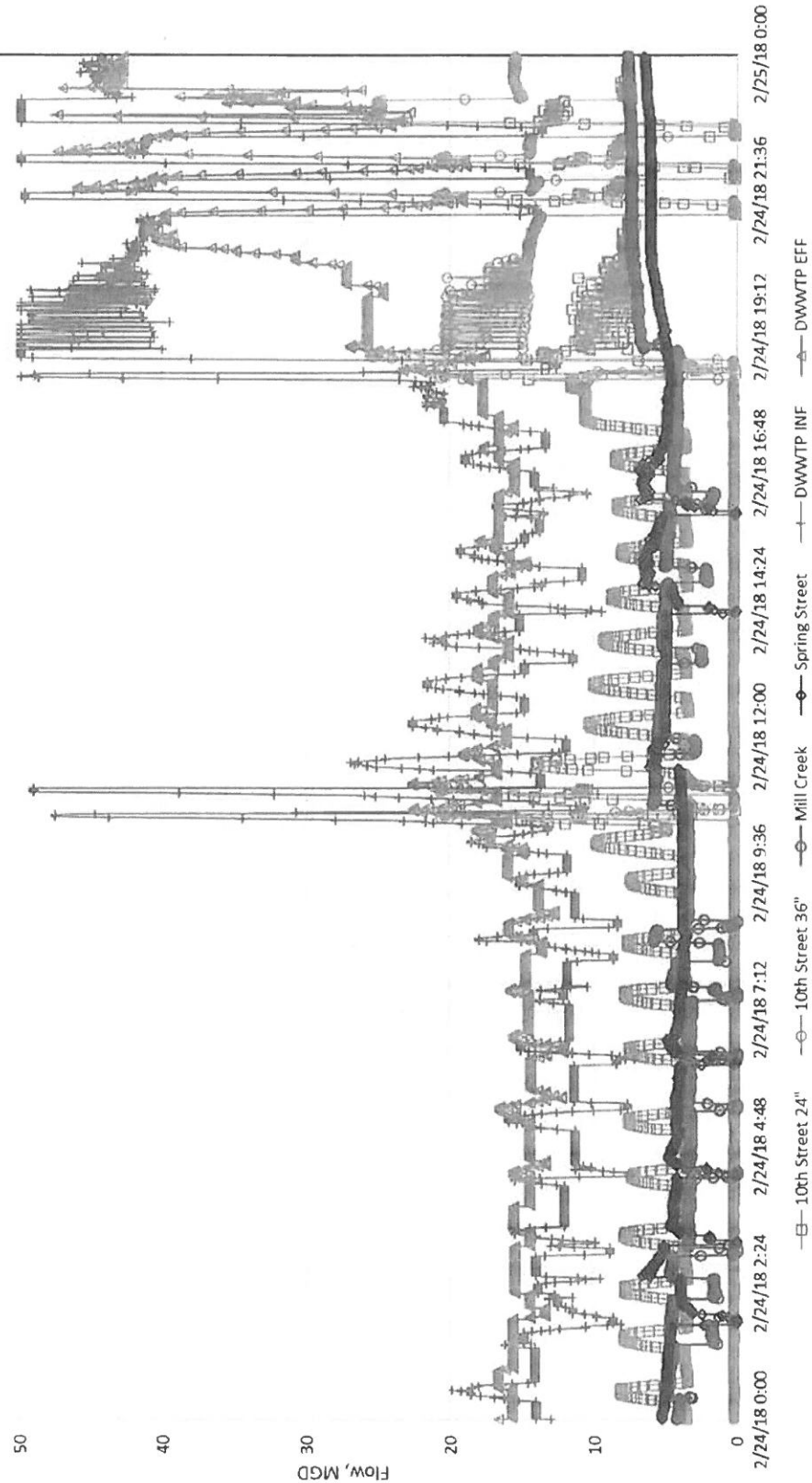
## **ATTACHMENT 4**

### **SCADA LOG CHARTS (Feb 2018 and Sep 2018)**

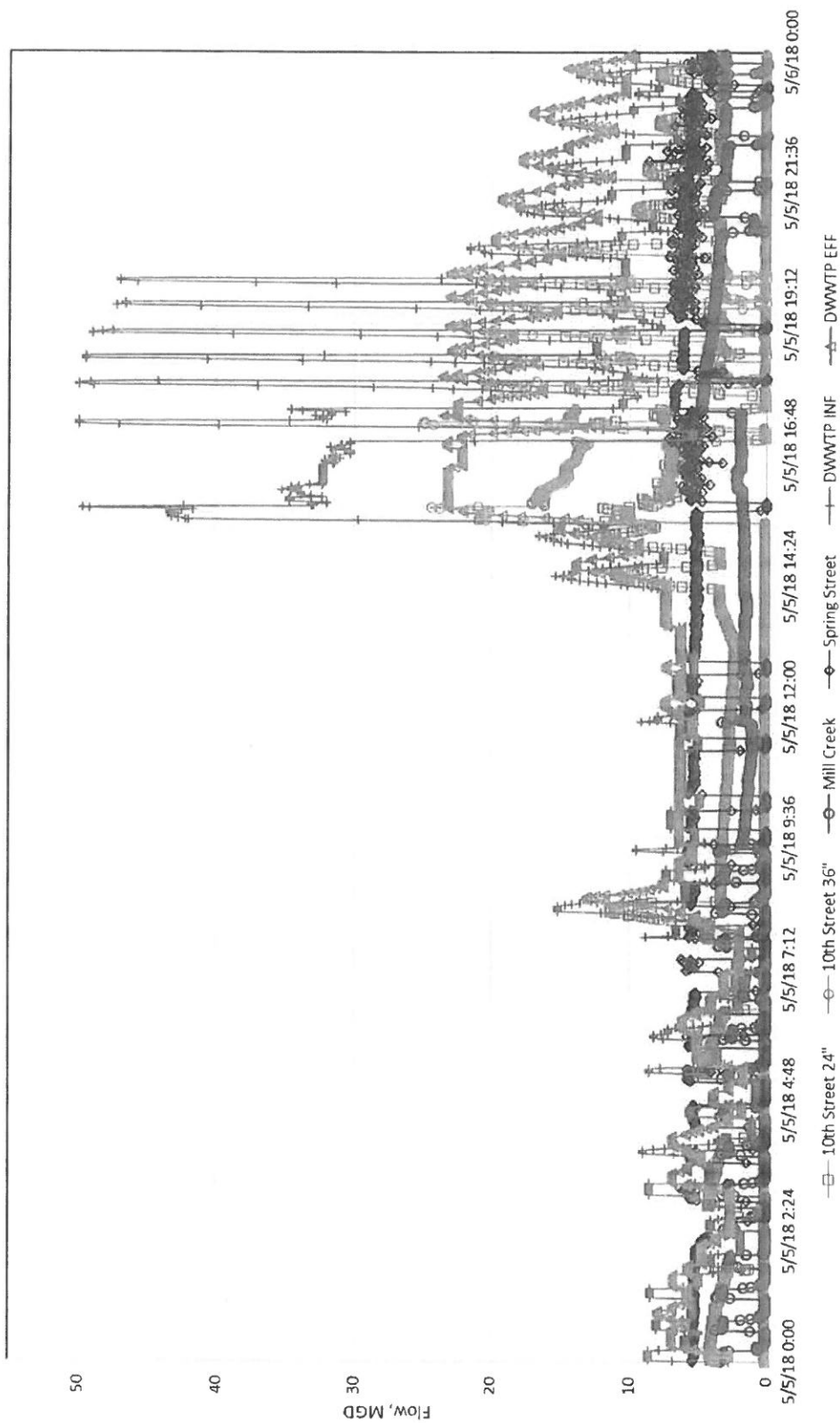
- **Tenth Street Pump Station Flow Summary**
- **Mill Creek Pump Station Flow Summary**
- **Spring Street Pump Station Flow Summary**
- **DWWTP Influent Flow Summary**
- **DWWTP Effluent Flow Summary**

Feb 23, 2018 Pump Stations and DWWTP Flow Data





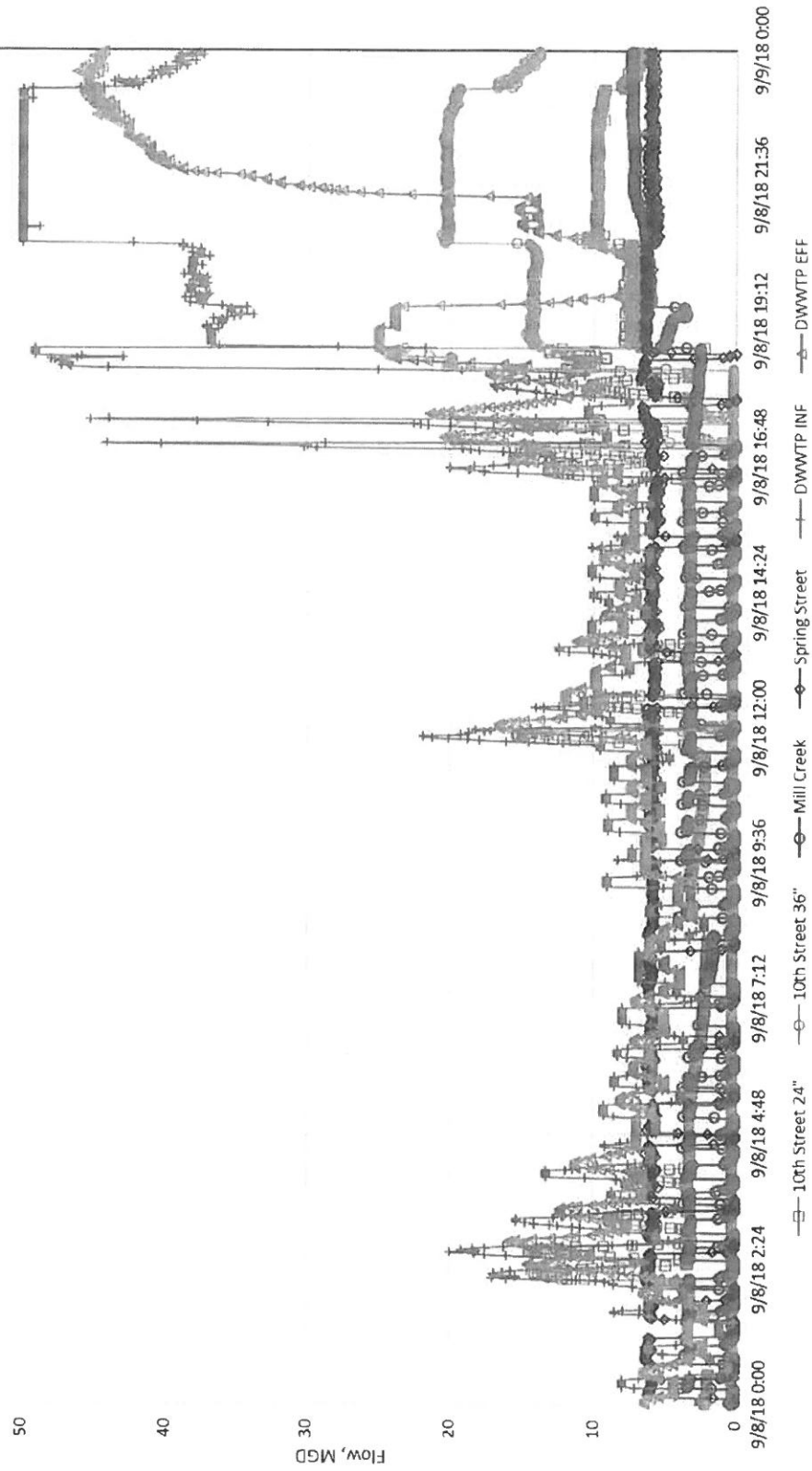
May 05, 2018 Pump Stations and DWWTP Flow Data



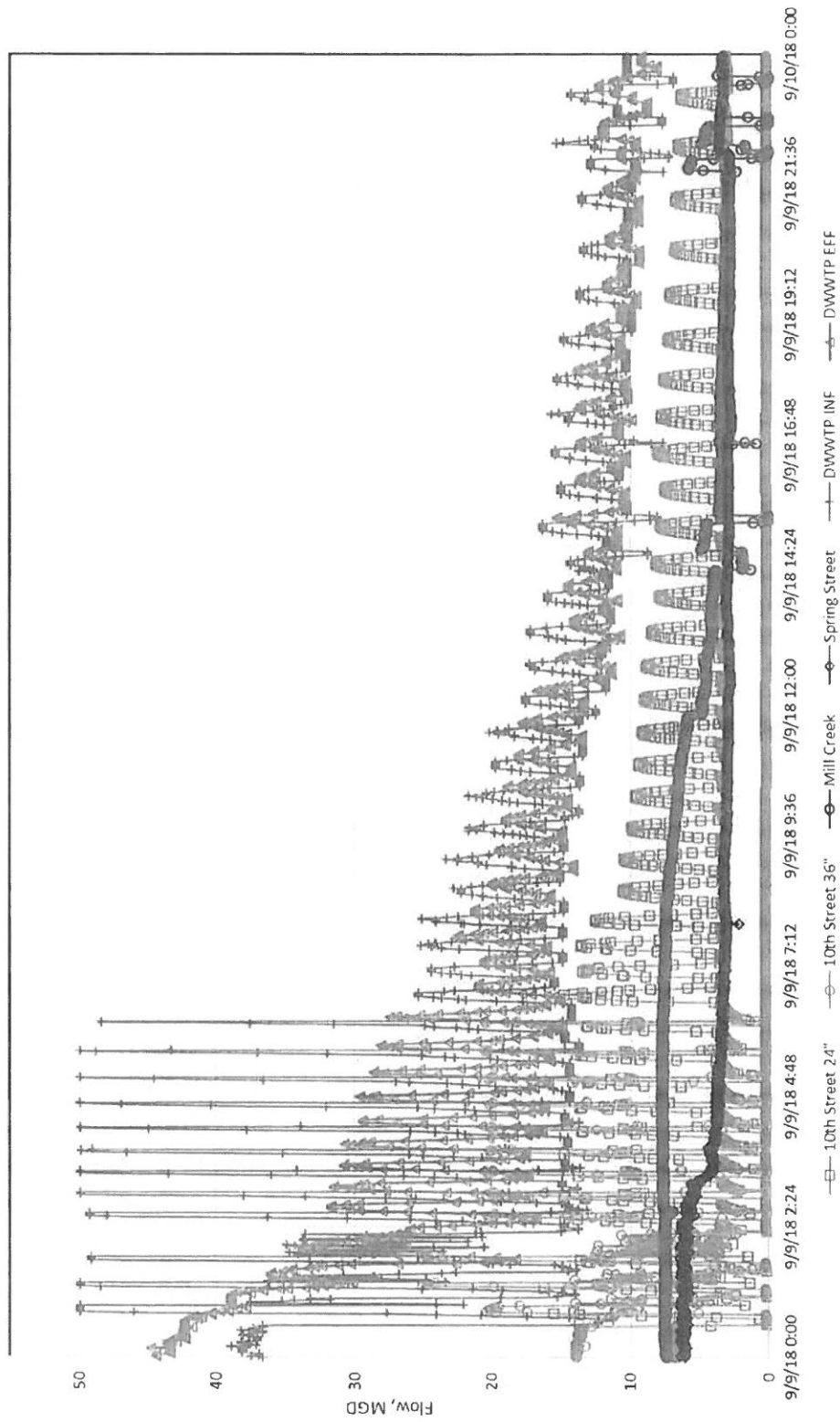
The hydrograph displays the flow response of the system to a rainfall event. The y-axis represents flow in MGD, ranging from 0 to 50. The x-axis represents time from 9/8/18 0:00 to 9/9/18 0:00. The plot includes the following data series:

- 10th Street 24"**: Represented by a line with square markers.
- 10th Street 36"**: Represented by a line with circle markers.
- Mill Creek**: Represented by a line with diamond markers.
- Spring Street**: Represented by a line with cross markers.
- DWWTP INF**: Represented by a line with plus markers.
- DWWTP EFF**: Represented by a line with triangle markers.

The flow peaks at approximately 45 MGD around 9/8/18 12:00. The DWWTP EFF flow is zero until approximately 9/8/18 18:00, after which it increases to about 10 MGD. The DWWTP INF flow is zero until approximately 9/8/18 16:00, after which it increases to about 10 MGD. The Spring Street flow is zero until approximately 9/8/18 14:00, after which it increases to about 10 MGD. The Mill Creek flow is zero until approximately 9/8/18 12:00, after which it increases to about 10 MGD. The 10th Street 24" and 10th Street 36" flows are zero until approximately 9/8/18 10:00, after which they increase to about 10 MGD.

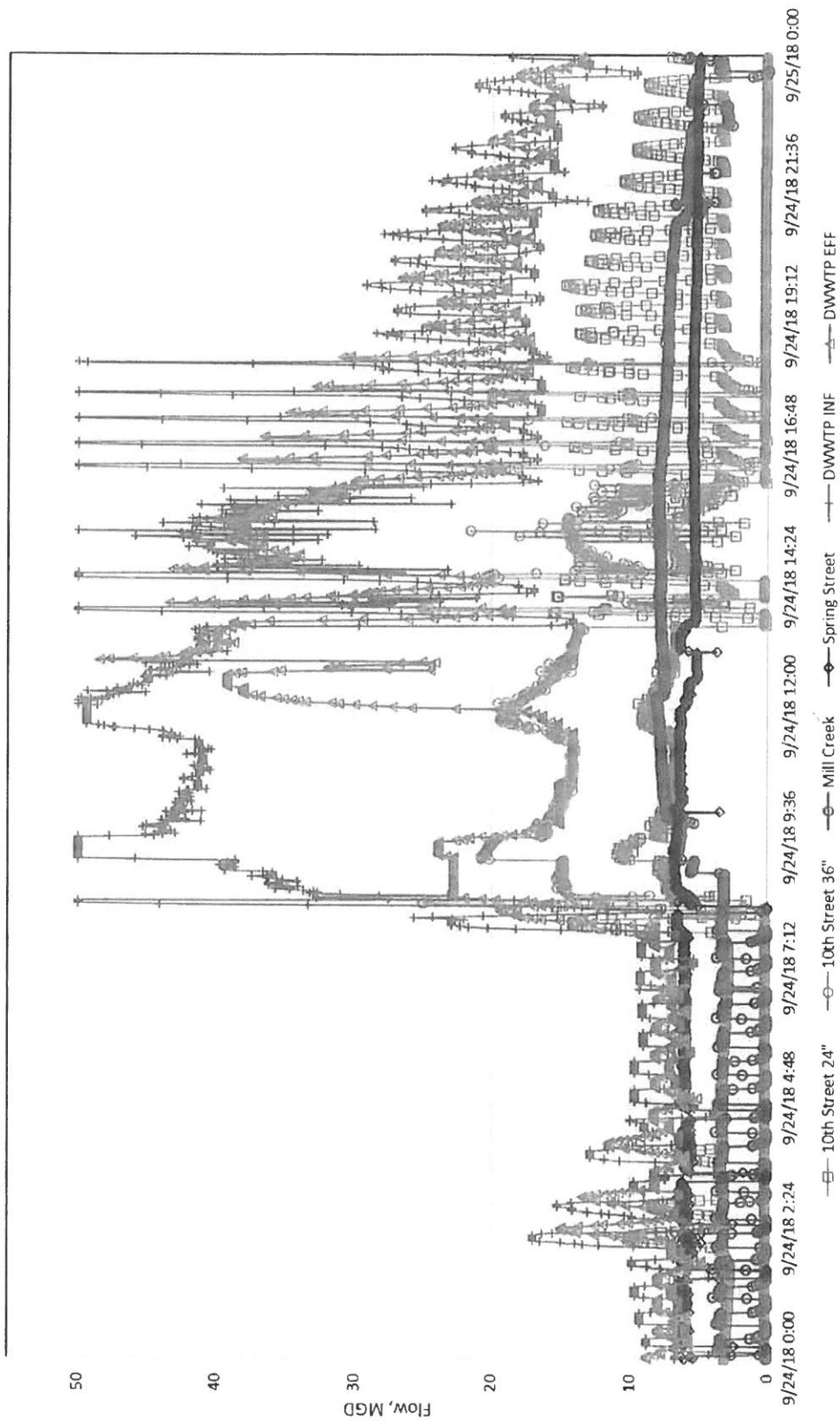


Sep 09, 2018 Pump Stations and DWWTP Flow Data





Sep 24, 2018 Pump Stations and DWWTP Flow Data



**ATTACHMENT 5**

**LTCP Implementation Schedule Gantt Chart**

# JEFFERSONVILLE, INDIANA 2018 CAPITAL IMPROVEMENT PROJECT COSTS MODIFIED PLAN

UPDATED TOTAL PROJECT COSTS (IN 2018 DOLLARS)	PROJECT SCHEDULE							Design Construction =
	2018	2019	2020	2021	2022	2023	2024	2025
<b>EPA CSO PROJECT COMPONENTS</b>								
CSO Interceptor, Phase 2&3 (includes repayment of <i>Exs. 4 and 7A</i> )								
Add 25 MGD Chemically enhanced High Rate Clarifier (CEHRC) for Phosphorus Removal and peak wet weather treatment, including chemical feed bldg.								
Blower & Aeration Improvements @ DWWTP								
Additional UV Equipment @ DWWTP for wet weather treatment								
<b>SUBTOTAL CSO Interceptor and CEHRC project</b>								
<b>SANITARY SEWER COLLECTION SYSTEM IMPROVEMENTS</b>								
Cedar View Pump Station Replacement								
Golfview Pump Station, Replace with suction lift pumps								
Crums #2 Pump Station Replacement								
8th, Ewing, Hopkins Sanitary Sewer replacement, includes pipe replacement along Levy								
Ewing Lane Pump Station, Artic Springs P.S. Force main Reroute								
Cherry Creek PS Replacement								
Silver Creek PS Replacement								
Replace Pumps at Spring Street PS								
Utica 1 PS Replacement & FM Relocation								
8th Street Sanitary Sewers for Combined Sewer Separation								
Veterans PS Capacity Expansion, new 14"FM to existing 35" Hamburg Pike Interceptor								
Cooper's North Lift Station (Annexation)								
36" Gravity Interceptor to Spring Street PS, Divert Scotts PS to new interceptor								
Wastewater R&R 2020-2025								
Phase 6 CSO Flow Data Simulation								
Combined Sewer System Misc Rehab								
Replace Maintenance Equipment for Lift Stations								
Replace Portable Standby Generators for Lift Stations								
Expand Lentzler Creek PS by installing two (2) new 3,000 gpm pumps in wetwell #2								
CMOM Equipment								
<b>SUBTOTAL SANITARY COLLECTION SYSTEM IMPROVEMENTS</b>								
<b>NWWTP IMPROVEMENTS</b>								
Expand NWWTP from 3MGD to 6MGD								
Add Phosphorus Removal System @ NWWTP								
<b>SUBTOTAL NWWTP PROJECTS</b>								

*Exemptions 4 and 7A*



JEFFERSONVILLE, INDIANA  
2018 CAPITAL IMPROVEMENT PROJECT COSTS  
MODIFIED PLAN

STORMWATER AND DRAINAGE IMPROVEMENT PROJECTS	2018	2019	2020	2021	2022	2023	2024	2025
8th, Ewing, Hopkins Sanitary Drainage Improvements								
8th Street Storm Sewers for separation								
Woehrlle Road Stormwater Detention Basin								
PS - 38 Woodland Court Stream Restoration								
PS - 15 Voluntary property acquisition/flood proofing								
PS - 30 Waverly Road buy outs								
PS - 1 Participation in Community Rating System (CRS), PS - 4 Citywide flood response plan								
PS - 10 Citywide O&M Manual update								
Lancassange Creek watershed study								
PS - 16 CSO Area Green Infrastructure Improvements (Not only on Spring Street)								
Stormwater R&R 2020-2025								
Purchase Storm Sewer Maintenance Equipment								
SUBTOTAL STORMWATER & DRAINAGE IMPROVEMENT PROJECTS								
TOTAL WASTEWATER PROJECTS								
TOTAL STORMWATER PROJECTS								
GRAND TOTAL								
PREVIOUSLY COMPLETED AND FINANCED PROJECTS (SEE ATTACHED LIST)								
GRAND TOTAL PROJECTED INVESTMENT BY CITY OF JEFFERSONVILLE								

Exemptions 4 and 7A